IN THE CLAIMS

Please amend the clams as follows:

1. (previously presented) A material for detecting ionizing radiation, comprising a π-conjugated material having an electrical resistivity of at least or greater than 10^9 ohm-cm.

2. (original) The material of claim 1, wherein the π-conjugated material comprises a mixture of π-conjugated materials.

3. (original) The material of claim 1, wherein the π-conjugated material includes π-conjugated polymers, polyaromatic hydrocarbons, or quinolates.

4. (cancelled)

5. (original) The material of claim 3, wherein the π-conjugated polymer is selected from the group of polymers consisting of polyacetylenes, polypyrroles, polyanilines, polyfluorines, polypheneylenes, polythiophenes, and derivatives and combinations thereof.

6. (original) The material of claim 5, wherein the derivative π-conjugated polymer is selected from the list of polymers consisting of poly(p-phenylenevinylene), poly(1-methoxy-4-(2-ethylhexyloxy)-2,5-phenylenevinylene), poly(2,5-dioctyloxy-p-phenylenevinylene), poly(3,4-ethylene dioxythiophene), and poly(3-octylthiophene), and combinations thereof.

7. (original) The material of claim 3, wherein the polyaromatic hydrocarbons include naphthalene, anthracene, or rubrene.

8. (original) The material of claim 3, wherein the π-conjugated polymer material is mixed with organic polymers.

9. (original) The material of claim 8, wherein the organic polymers include polystyrene or poly(methyl methacrylate).

10. (original) The material of claim 3, wherein a metal is incorporated into the π-conjugated polymer structure.

11. (original) The material of claim 10, wherein the metal is aluminum, gallium, boron or lithium.

12. (previously presented) A device for detecting ionizing radiation, comprising:

electrodes, wherein said electrodes are compositionally alike;

a π-conjugated material having the π-conjugated material of claim 1 disposed between said electrodes; and

power supply means for providing power to said electrodes.

13. (original) The device of claim 12, wherein the electrodes are metals, conducting oxides, electrically conducting polymers, or combinations thereof

14. (original) The device of claim 12, wherein the π-conjugated material comprises a polymer.

15. (original) The device of claim 14, wherein the π-conjugated material includes π-conjugated polymers, polyaromatic hydrocarbons, or quinolates.

16. (original) The device of claim 15, wherein the π-conjugated polymer is selected from the group of polymers consisting of polyacetylenes, polypyrroles, polyanilines, polyfluorines, polypheneylenes, polythiophenes, and derivatives and combinations thereof.

17. (original) The device of claim 16, wherein the derivative π-conjugated polymer is selected from the list of polymers consisting of poly(p-phenylenevinylene), poly(1-methoxy-4-(2-ethylhexyloxy)-2,5-phenylenevinylene), poly(2,5-dioctyloxy-p-phenylenevinylene), poly(3,4-ethylene dioxythiophene), and poly(3-octylthiophene) and combinations thereof.

18. (original) The device of claim 15, wherein the polyaromatic hydrocarbons include naphthalene, anthracene, or rubrene.

19. (original) The device of claim 15, wherein the π-conjugated polymer material is mixed with organic polymers.

20. (original) The device of claim 19, wherein the organic polymers include polystyrene or poly(methyl methacrylate).

21. (cancelled

22. (original) The device of claim 15, wherein a metal is incorporated into the π-conjugated polymer structure.

23. (original) The device of claim 22, wherein the metal is aluminum, gallium, boron or lithium.

24. (previously presented) A device for detecting low energy neutron radiation, comprising:

electrodes, wherein said electrodes are compositionally alike;

the π-conjugated material of claim 1 disposed between said electrodes; and

power supply means for providing power to said electrodes.

25. (original) The device of claim 24, wherein the electrodes are metals, electrically conducting oxides, electrically conducting polymers, or combinations thereof.

26. (original) The device of claim 24, wherein the π-conjugated polymer includes polyaromatic hydrocarbons, or quinolates.

27. (original) The device of claim 26, wherein the π-conjugated polymer is selected from the group of polymers consisting of polyacetylenes, polypyrroles, polyanilines, polyfluorines, polypheneylenes, polythiophenes, and derivatives and combinations thereof.

28. (original) The device of claim 27, wherein the derivative π-conjugated polymer is selected from the list of polymers consisting of poly(p-phenylenevinylene), poly(1-methoxy-4-(2-ethylhexyloxy)-2,5-phenylenevinylene),

poly(2,5-dioctyloxy-p-phenylenevinylene), poly(3,4-ethylene dioxythiophene), and poly(3-octylthiophene), and combinations thereof.

29. (original) The device of claim 26, wherein the polyaromatic hydrocarbons include naphthalene, anthracene, or rubrene.

30. (original) The device of claim 26, wherein the π-conjugated polymer is mixed with organic polymers.

31. (original) The device of claim 30, wherein the organic polymers include polystyrene or poly(methyl methacrylate).

32. (cancelled)

33. (currently amended) The device of claim 26, wherein a metal is incorporated onto the π-conjugated polymer structure ~~further comprises a metal~~.

34. (original) The device of claim 33, wherein the metal is aluminum, gallium, boron or lithium.

35. (original) A device for detecting ionizing radiation, comprising: an array of wires embedded in a π-conjugated material, the array comprising a first set of parallel spaced apart wires intersecting orthogonally with a second set of parallel spaced apart wires; and means for supplying power to the array.

36. (original) The device of claim 35, wherein the wires are spaced at a distance of from about 10μm to about 100μm apart.

37. (original) A device for detecting ionizing radiation, comprising: a plurality of layers joined together to form a multilayer stack, wherein each layer comprises an array of wires embedded in a π-conjugated material, the array comprising a first set of parallel wires intersecting orthogonally with a second set of parallel wires; and means for supplying power to each array.

38. (original) The device of claim 37, wherein the wires are spaced at a distance of from about 10μm to about 100μm apart.

39. (original) A device for measuring radiation dose to human skin, comprising: electrodes; a π-conjugated polymer disposed between said electrodes, wherein said π-conjugated polymer has C:H ratio and density substantially equal to that of human skin; and means for providing power to said electrodes.

40. (original) A device for detecting ionizing radiation, comprising:

a pair of electrodes, each having a length and width, wherein the length is greater than the width;

a π-conjugated polymer disposed between said electrodes, wherein the combination of electrodes and π-conjugated polymer is rolled up along their length to form a generally cylindrical-shape structure having a small volume and a high surface area; and

means for providing power to said electrodes.

41. (previously presented) A method for detecting fission neutrons, comprising the steps of:

providing a π-conjugated polymer having an electrical resistivity of at least or greater than 10^9 ohm-cm disposed between a pair of compositionally alike electrodes; and

applying power to the electrodes to produce an electric field within the π-conjugated polymer.

42. (previously presented) A method for detecting ionizing radiation, comprising:

providing a π-conjugated polymer having an electrical resistivity of at least or greater than 10^9 ohm-cm disposed between a pair of compositionally alike electrodes; and

applying power to the electrodes to produce an electric field within the π-conjugated polymer.

43. (previously presented) The material of claim 1, wherein carboxylate salts of aluminum, gallium and lithium are incorporated into the structure of the π-conjugated material.

44. (previously presented) The material of claim 1, wherein boron in the form of boronic acid is incorporated into the structure of the π-conjugated material.

45. (previously presented) The device of any of claims 12, 35, 37 and 40, wherein carboxylate salts of aluminum, gallium and lithium are incorporated into the structure of the π-conjugated material.

46. (previously presented) The device of any of claims 12, 35, 37 and 40, wherein boron in the form of boronic acid is incorporated into the structure of the π-conjugated material.

47. (currently amended) The material of any of claims 1, 12, ~~47~~ 24, ~~50~~ 35, 37 and 40 wherein an external stress is applied to the π-conjugated material to orient the polymer chains.

48. (previously presented) The material of claim 47, wherein the external stress is applied at a temperature above the glass transition temperature of the material and below the melting temperature.

49. (previously presented) The material of claim 47, wherein the external stress is by stretching the polymer chains.